AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (previously presented): A method of manufacturing a container from plastic material, the method comprising:

thermally conditioning at least certain areas of a preform of the container so that the temperature of said areas exceeds a glass transition temperature of their constituent material,

injecting a fluid into the preform to cause an expansion of the preform in order to form a container,

performing a free expansion outside of a mold, of at least some of the areas of the preform, and

controlling at least one injection parameter of the fluid in order to produce a final container,

wherein the at least one injection parameter of the fluid is controlled so that a final internal volume of the container falls within predetermined limits with respect to a reference volume.

2. (canceled).

3. (previously presented): The method according to claim 1, wherein the at least one injection parameter of the fluid is controlled based on the temperature of said areas of the preform.

4. (previously presented): The method according to claim 1, wherein the at least one injection parameter is a pressure of the fluid injected into the preform.

5. (previously presented): The method according to claim 1, wherein the at least one injection parameter is the flow rate of the fluid injected into the preform.

6. (previously presented): The method according to claim 4, wherein the pressure is varied during injection.

7. (previously presented): The method according to claim 6, wherein the pressure is varied such that an initial pressure is more than a pressure at the end of the injection, and the initial pressure is set in order to prevent the constituent material of the preform from solidifying before obtaining a final desired expansion, and the pressure at the end of injection is reduced below the initial pressure to prevent the constituent material from bursting.

8. (previously presented): The method according to claim 1, wherein one controlled injection parameter is a temperature of the fluid.

9. (previously presented): The method according to claim 1, wherein the at least one injection parameter of the fluid is controlled so that the expansion is stopped naturally by the solidifying of the constituent material of the preform so that when the constituent material is solidified reaction forces exerted by the solidified constituent material are opposite to those exerted by the fluid.

10. (previously presented): The method according to claim 1, wherein the at least one injection parameter of the fluid so that expansion is naturally stopped by solidifying the constituent material of the preform when the expansion is such that the final internal volume of the container falls within predetermined limits with respect to a reference volume, and when the material is solidified the reaction forces exerted by the solidified constituent material are opposite to those exerted by the fluid.

11. (previously presented): The method according to claim 1, wherein ~~consists of~~the injecting of the fluid is stopped after a predetermined time.

12. (previously presented): The method according claim 1, wherein the fluid is a gas.

13. (previously presented): The method according to claim 12, further comprising:

after performing a free expansion of the preform, maintaining a residual pressure of the gas inside the container, and filling the container with a liquid under a gas pressure at least equal to the residual pressure in the container.

14. (previously presented): The method according to claim 13, wherein performing the free expansion comprises first sealably isolating the interior of the preform from the exterior environment by placing the interior of the preform in communication with a source of gas under pressure to cause the expansion of the preform using said source, wherein said source is used for generating said pressure applied on the fill liquid in order to fill the container with a liquid gas pressure at least equal to the residual pressure in the container ,

wherein the maintaining the pressure of the gas and filling the container comprises, when the expansion is completed, maintaining the isolation from the exterior and the communication between the interior of the preform with the source of gas, and causing the filling of the container thus formed with the liquid under pressure.

15. (previously presented): The method according to claim 12, wherein the gas is compressed air.

16. (previously presented): The method according to claim 1, wherein the fluid is a liquid.

17. (previously presented): The method according to claim 16, wherein, because the container is intended to be filled by means of a liquid, it comprises using said liquid to cause the expansion of the preform in order to make it into a container, during the filling phase of the container which thus constitutes its manufacturing phase.

18. (previously presented): The method according to claim 17, wherein the liquid is hot.

19. (previously presented): The method according to claim 1, wherein the performing the free expansion comprises introducing a predetermined volume of fluid into a compartment, placing the compartment in sealed communication with the preform, and transferring the fluid from the compartment to the preform, while controlling at least one transfer parameter of said fluid outside the compartment to allow the expansion of the preform and its transformation into a final container.

20. (previously presented): The method according to claim 1, wherein the shape of the container is varied by modifying the heating profile of said areas of preform of the container during the thermal conditioning.

21. (previously presented): The method according to claim 1, wherein it includes the step of producing a base area on the container, in a step consecutive to their formation, by causing pressure between the area of the container at the location where the base area should be produced and an exterior pressing surface.

22. (currently amended): A system of manufacturing containers comprising:

a unit for thermally conditioning at least a preform;

an expansion unit with at least an expansion device of the said at least the preform, which expansion device is associated with a source of fluid to cause the expansion of the preform by injection of said fluid;

an isolating component that seals the interior of the preform from the exterior environment;

a connecting component that places the interior of the preform in communication with said source of fluid to cause the expansion of the preform wherein the expansion unit is a free expansion unit of at least certain of said areas of the preform; and

a control unit which is configured to control~~for controlling~~ at least one injection parameter of the fluid in order to control the expansion of the preform to produce the final container so that a final internal volume of the container fall within predetermined limits with respect to a reference volume~~,~~

~~wherein the at least one injection parameter of the fluid is controlled so that a final internal volume of the container falls within predetermined limits with respect to a reference volume~~.

23. (previously presented): A system according to claim 22, further comprising:

a temperature measurement unit which measures a temperature of the preform,

wherein the control unit controls the at least one injection parameter based on the temperature at least one area of the preform.

24. (previously presented): A system according to claim 22, wherein the control unit is associated with a pressure controller that controls the pressure of the fluid injected into the preform.

25. (previously presented): A system according to claim 24, wherein the pressure controller varies the pressure of the fluid during the injection.

26. (previously presented): A system according to claim 22, wherein the control unit is associated with a flow rate controller that controls the flow rate of the fluid injected into the preform.

27. (previously presented): A system according to claim 22, wherein the control unit is associated with a temperature controller that controls the temperature of the fluid.

28. (previously presented): A system according to claim 22, wherein the control unit controls a duration of injection of the fluid.

29. (previously presented): A system according to claim 22, further comprising a means for maintaining a residual pressure of gas inside the container when it is formed, and for immediately filling the container with a liquid under pressure of gas at least equal to the residual pressure in the container.

30. (previously presented): A system according to claim 29, further comprising:

a tank of pressurized fill liquid;

a source of gas for pressurizing the tank;

means for placing the interior of the preform in communication with said source of pressurized gas to cause the expansion of the preform by said source; and

means, when the expansion is complete, of maintaining isolation from the exterior and communication between the interior of the preform and the source of gas for filling of the container thus formed.

31. (previously presented): A system according to claim 22, wherein the expansion unit includes a filling unit to fill the container after the expansion and the control unit is associated with means for controlling the pressure of a fill liquid.

32. (previously presented): A system according to claim 22, wherein a source of fluid for causing the expansion comprises a compartment containing a volume of fluid at least equal to the desired volume for the final container, and the control unit is associated with means for transferring the fluid contained in the compartment to the preform and means for controlling at least one transfer parameter of said fluid outside the compartment such that the final container expands to a predetermined volume.

33. (previously presented): A system according to claim 22, wherein the thermal conditioning unit has means for preselecting the heating profile the profile of the preform